ORDER

6600.25

PROJECT IMPLEMENTATION PLAN
INTEGRATED COMMUNICATIONS SWITCHING SYSTEM
(ICSS)
PHASE 1A

November 16, 1990

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Distribution: A-W(NC/NW/LG/SM)-3; A-W(TR/BU/GC/HT)-2; A-W(AT/AF)-1; A-X(AF/AT/LG)-3; A-YZ-1; A-FAF-2/3/7 (LTD); Automated FSSs

Initiated By: ANC-120

RECORD OF CHANGES

DIRECTIVE NO. 6600.25

CHANGE TO BASIC	SUPPLEMENTS			OPTIONAL USE	CHANGE TO BASIC	SUPPLEMENTS			OPTIONAL USE

FAA Form 1320-5 (5-68) SUPERSEDES PREVIOUS EDITION

GPO 1968 O-300-363

FOREWORD

This order promulgates the project implementation plan (PIP) for Phase 1A Integrated Communications Switching System (ICSS) Program, and provides guidance and direction for the implementation and installation of ICSS Phase 1A Type 3 ICSS's. This order provides technical guidance and management direction and assigns responsibilities in the implementation of the ICSS Phase 1A Program. It also identifies and describes specific events and activities to be accomplished in order to implement the ICSS Phase 1A equipment.

for John J. Boyle

Program Director for Communications
and Aircraft Acquisition

TABLE OF CONTENTS

CHAPTER 1. GENERAL

1. PURPOSE. This project implementation plan (PIP) provides technical guidance and management direction for organizations involved in the implementation of the Phase 1A Integrated Communications Switching System (ICSS) program.

2. DISTRIBUTION. This order is distributed to the branch level in the Office of the Program Directors for Communications and Weather and Flight Service Systems, and the Logistics and Systems Maintenance Services; to division level in the Air Traffic Plans and Requirements Service, Offices of Budget, Chief Counsel, and Training and Higher Education; to director level in the offices of the Associate Administrators for Air Traffic and Airway Facilities; to branch level in the regional Airway Facilities, Air Traffic, and Logistics divisions; to director level at the FAA Technical Center and Mike Monroney Aeronautical Center; limited distribution to the Airway Facilities sectors, sector field offices, sector field units and sector field office units; and to the Automated Flight Service Stations having ICSS.

3. DEFINITIONS. The definitions of acronyms/abbreviations used in this order are contained in Appendix 1, Definitions/Acronyms.

4. AUTHORITY TO CHANGE THIS ORDER. The Program Director for Communications is the approval authority for all changes to this order.

5. APPLICABILITY. The guidance contained herein shall be used by FAA offices, services, regions, and the Mike Monroney Aeronautical Center in support of Phase 1A Type 3 ICSS implementation activities. Unless otherwise indicated, ICSS will represent the ICSS Phase 1A Type 3. The guidance and schedule information contained herein shall form the framework for these organizations in the more detailed planning activities required at regional and field levels.

6.-19. RESERVED.

CHAPTER 2. PROJECT OVERVIEW

20. SYNOPSIS. Flight service station specialists use three kinds of voice communications services: intercom, when talking to other specialists in the same facility; interphone, when talking (via telephone lines) to controllers or other specialists in other facilities; and radio, when talking to pilots in aircraft. To provide these services, the FAA has a requirement for additional Type 3 ICSS's. The ICSS Phase 1 Program provided 45 Type 3 systems for use at Automated Flight Service Stations (AFSS). ICSS Phase 1A provides for the procurement of 18 additional Type 3 ICSS's; 15 for use at AFSS's, and three support systems for the Mike Monroney Aeronautical Center (AAC). There is a contingency option for four additional systems. The FAA contracts office issued a solicitation in January 1988 for a full and open competition/ invitation for bid (IFB) and the ICSS Phase 1A contract was awarded to Denro, Inc., of Gaithersburg, Maryland, in December 1988.

21. PURPOSE. The purpose of the ICSS Phase 1A project is to provide a reliable integrated air/ground and ground/ground voice communications system that will meet current and future operational requirements for flight service specialists in AFSS's.

22. HISTORY.

a. Before the ICSS Program was established, voice switching systems were leased on a sole-source basis from AT&T. By 1981, however, two factors necessitated change in the FAA strategy for providing switching systems. First, procurement policy dictated an end to the traditional sole-source ordering of major telephone switching systems, and second, the existing system elements could no longer satisfy the technological and operational requirements for voice communications in the evolving National Airspace System (NAS).

b. In 1981, the Defense Electronics Commercial Communications Office (DECCO), acting on behalf of the FAA, issued a solicitation for a competitive lease-with-option-to-buy contract for 45 Type 3 ICSS's for AFSS's.

c. A contract was awarded to Litton-Amecon in May 1982 for 31 of the 45 total Type 3 ICSS's. Denro, Inc., was tasked to supply the additional 14 Type 3 ICSS's. The ICSS Phase 1A contract will provide 15 more Type 3 systems which will bring the total number of systems used in AFSS's to 60.

23.-29. RESERVED.

CHAPTER 3. PROJECT DESCRIPTION

30. FUNCTIONAL DESCRIPTION. The functional capabilities of the ICSS outlined in this paragraph represent broad functions which are fulfilled by the equipment.

a. Basic Communications Features. The ICSS performs the following communications functions:

(1) Direct access (single button stroke) intercom and interphone calling.

(2) Indirect access intercom and interphone calling using a telephone type keypad.

(3) Call signaling/completion in a variety of ways, including address number dialing with or without override, ring down, and voice call.

(4) Radio transmitter/receiver selection and keying (through tone control equipment and, in the future, through Radio Control Equipment (RCE)).

b. Advanced Communications Features. The ICSS also provides advanced features to facilitate communications performance:

(1) Indirect access from each position to all other positions and trunks within the facility.

(2) Radio main/standby transmitter/receiver selection control.

(3) Supervisory monitoring via direct or indirect access.

(4) Call forwarding to another position.

(5) Multiparty conferencing.

(6) Call transfer.

(7) ICSS switching network equipment routes calls and radio conversations to proper destinations.

c. Rapid Automated Reconfiguration. Earlier voice systems required wiring changes within the hardware to change assigned connectivity between specialists and radio/telephone access lines. Consequently, changes to the features or services available at a position required work orders, extensive delays, and considerable expense. Unlike those systems, the ICSS provides computerized reconfiguration of individual positions or entire facilities. A supervisor working from a console can effect such changes in a matter of seconds. Systems can be constantly tailored, several times a day, if necessary, for optimum functionality under dynamic conditions.

d. Automated Diagnostic Equipment. The ICSSs include automatic diagnostic routines that constantly monitor the status of critical components (both main and redundant) throughout the system. Alarms are provided to warn of real or impending failures and the diagnostic display identifies the defective module(s).

31. PHYSICAL DESCRIPTION. The ICSS is modular in nature, so that different hardware configurations can be assembled from a minimum number of distinct elements. The following are basic system elements of the ICSS:

a. Air Traffic Control (ATC) Position Equipment. This equipment is the specialist's tool for initiating and responding to communications.

b. Switching Network Equipment. This equipment establishes connectivity between ATC positions, to radio access lines, or to landlines interfacing with the system.

c. Configuration Control Equipment. This equipment provides for changes in the system connectivity and functional capability. Examples include assignment of radio frequencies, direct access connections, and special functions to be controlled by specific selectors. Such changes are implemented from an interactive terminal located at a dedicated console.

d. Maintenance and Diagnostic Equipment. This equipment facilitates diagnosis of system status and assists maintenance efforts by alerting personnel to actual or impending failures.

e. Power System Equipment. This equipment provides power to all subsystems by power conversion from commercial power lines. It also includes a backup power system to continue to supply power to the ICSS to prevent system outage in case of commercial power failure.

f. Automatic Call Distribution Equipment. This equipment receives incoming calls on telephone access lines and routes these calls to ATC specialist positions or automated response equipment, including menu repertory, flight plan recorders (FASTFILE), and weather recorded advisories (PATWAS).

g. Administrative Phone System. The ICSS will normally interface with the local administrative phone systems. This telephone equipment provides local PBX service and access to telephone networks such as Central Office, FTS, etc.

h. Equipment Physical Characteristics. The equipment room racks, cabinets, and frames will not exceed 84 inches in height, 36 inches in width, and 30 inches in depth. Specific equipment configurations for the ICSS will be available after individual site surveys are completed.

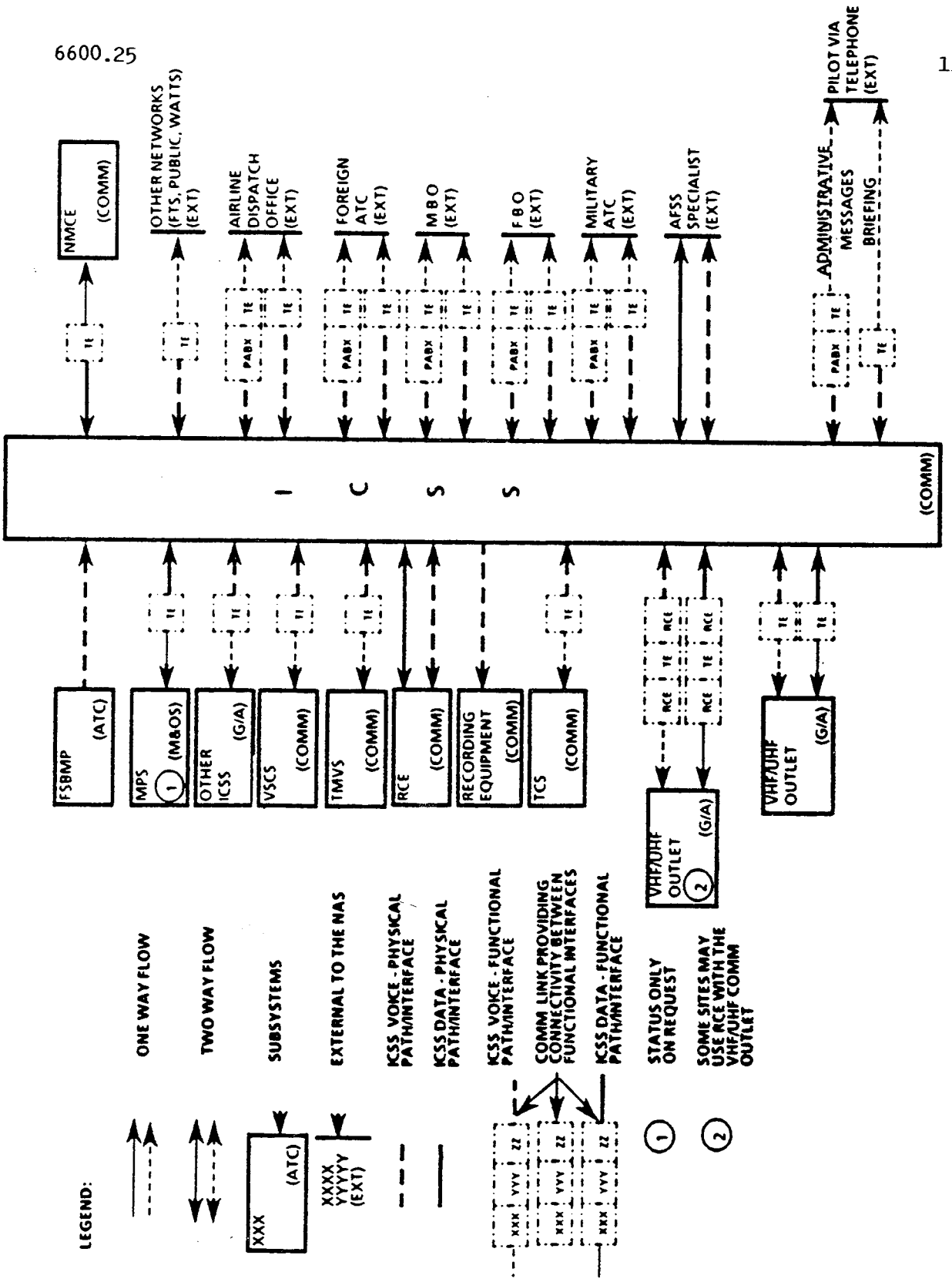
32. SYSTEM REQUIREMENTS. The equipment will operate when using 120 VAC, single phase and 208 VAC, three phase four-wire 60 Hz power. Forced ventilation, where required, will exhaust from the top of the cabinets. All

equipment cabinets and frames will be bolted to the concrete subflooring and fastened, at a minimum, at all four corners. ICSS will operate in an environment between 50-100 degrees Fahrenheit with relative humidity 10 percent - 80 percent noncondensing. Specific system requirements such as power and cooling as well as floor space will be given in the site survey report (CDRL C19).

33. INTERFACES. Interface equipment is provided for connections to trunk circuits and to transmitters and receivers. Universal trunk interface equipment is provided to permit the interphone circuits to interface with telephone systems and with equipment external to the ICSS on both a two-wire and four-wire basis. The trunk interface equipment is modular and compatible with government-furnished trunk circuits. The ICSS will be able to interface with all planned NAS equipment. The ICSS will interface with specific equipment as shown in figure 3-1.

34.-39. RESERVED.

FIGURE 3-1. ICSS FUNCTIONAL/PHYSICAL INTERFACES



CHAPTER 4. PROJECT SCHEDULE AND STATUS

40. PROJECT SCHEDULE AND GENERAL STATUS. Two project activity schedules are provided. Table 1 depicts major milestones which have been completed. Table 2 provides the major milestones remaining to complete the project and their relative dates. The activities on these tables are by no means inclusive of all milestones required for project completion. The uncompleted activities are dynamic and are subject to change.

41. MILESTONE SCHEDULE SUMMARY. Contract award for the ICSS procurement was December 1988. The Deployment Readiness Review (DRR) process began approximately 60 days after contract award. DRR provides the process for determining readiness for delivery to the first operational site for commissioning.

42. INTERDEPENDENCIES AND SEQUENCE. The ICSS directly impacts the AFSS commissioning and relocation schedules. With the exception of Kenai, these facilities will not be commissioned until the ICSS has been installed. Table 3 is a tabulation of delivery points, ICSS delivery dates, and AFSS commissioning dates.

43.-49. RESERVED.

TABLE 1. MAJOR MILESTONES COMPLETED

ACTIVITY DESCRIPTION	ACTUAL FINISH
TPL APPROVED BY THE OFFICE OF SECRETARY OF TRANSPORTATION (OST)	Aug. 27, 1987
PROCUREMENT REQUEST RELEASED BY APS-1	Oct. 7, 1987
SOLICITATION ISSUED	Jan. 29, 1988
CONTRACT AWARDED (T)	Dec. 7, 1988
INITIATED THE DRR PROCESS	T + 60 (2 mo)

TABLE 2. MAJOR MILESTONES TO BE COMPLETED

ACTIVITY DESCRIPTION	MILESTONE DATE
DRR REPORT DELIVERED TO ADL-2	T + 270 (9 mo)
FACTORY ACCEPTANCE TEST (FAT) COMPLETED FOR FIRST OPERATIONAL SITE	T + 360 (12 mo)
SYSTEM DELIVERED TO FIRST SITE	T + 390 (13 mo)
FIRST SITE TESTING COMPLETED	T + 630 (21 mo)
SYSTEM DELIVERED TO LAST OPERATIONAL SITE	T + 720 (24 mo)
LAST SITE TESTING TEST COMPLETE	T + 840 (26 mo)

TABLE 3. DELIVERY AND INSTALLATION

DELIVERY SCHEDULE

The ICSSs have been scheduled for delivery as follows:

DELIVERY POINT	DELIVERY DATE	AFSS FACILITY COMMISSIONING DATE
Jonesboro, AR	T + 13 mo	21 mo
Kenai, AK	T + 17 mo	In Service
Gainesville, FL	T + 17 mo	23 mo
Rancho Murieta, CA	T + 19 mo	24 mo
Albuquerque, NM	T + 18 mo	24 mo
Greenwood, MS	T + 18 mo	23 mo
Casper, WY	T + 19 mo	25 mo
Juneau, AK	T + 21 mo	24 mo
Elkins, WV	T + 22 mo	25 mo
Buffalo, NY	T + 22 mo	25 mo
Great Falls, MN	T + 23 mo	26 mo
Fairbanks, AK	T + 22 mo	25 mo
Boise, ID	T + 24 mo	26 mo
Oakland, CA	TBD	
MMAC (3 Systems)	As required	NA
Optional (5 Systems)	As required	NA

CHAPTER 5. PROJECT MANAGEMENT

50. PROJECT MANAGEMENT, GENERAL. The Program Director for Communications (ANC-1) has assigned the responsibility for technical management of the ICSS Program to the Communications Engineering Division (ANC-100).

51. The following organizations will support the ICSS Program:

a. Voice Switching and Recording Program (ANC-120).

(1) Serves as the program office and technical office.

(2) Provides technical direction and implementation for the project.

(3) Provides the focal point for organizations in support of this project.

b. Configuration Management and Engineering Support Division (ASE-600).

(1) Provides overall guidance and policy for configuration management (CM).

(2) Responsible for configuration status accounting for the NAS Change Proposal (NCP) process.

c. Logistics Service Contracts Division (ALG-300). Provides all procurement actions necessary to enter into contract for the acquisition of ICSSs. Also will provide contract administration.

d. Maintenance Engineering Division (ASM-600). As the engineering field support activity for the ICSS, ASM-600 will:

(1) Maintain the hardware and software configurations.

(2) Design, develop, test, acquire, distribute, and coordinate the installation of software and hardware associated with system modifications.

(3) Prepare, edit, print, and distribute documentation associated with modifications to the ICSS.

(4) Make changes to applicable handbooks and instruction books.

(5) Technically support regional field offices, ICSS sites and the program managers office.

(6) Review all instruction material before FAA acceptance.

(7) Generate procedures and perform shakedown tests in accordance with Order 1810.4A, FAA NAS Test Evaluation Program.

e. FAA Regional Associate Program Manager. At the request of the program office, the regional office will appoint an associate program manager, who will ensure that facilities and engineering work stated in the site survey is completed prior to delivery of equipment. The associate program manager will be the primary interface between the region and the program office. The regions will be responsible for monitoring contractor maintenance performance and providing this information back to the program office. Project implementation onsite is the responsibility of the Airway Facilities (AF) division receiving the ICSS. Implementation activities include site preparation, installation, and checkout (see Chapter 8, Verification).

f. FAA Depot Support Organizations. Responsible for provisioning, supply support, and the management of FAA Depot level maintenance whether performed by the FAA Depot or a contractor.

g. System Engineering and Integration (SEI) Contractor. Provides technical direction and assists in the overall management of the project. Specific tasks include:

(1) Project planning.

(2) Subsystem and interface configuration control.

(3) Project financial management and control.

(4) Project schedule control.

(5) Documentation review.

(6) Logistics support management analysis.

(7) Contribution to project reviews and reports.

(8) Coordination with ICSS contractor.

(9) Provide membership to the Configuration Control Board (CCB).

h. Airway Facilities Training Program Division (AHT-400). Responsible for analyzing training proposals and satisfying training requirements.

i. FAA Academy (AAC-934, AAC-943). Responsible for technical evaluation of contractor developed and conducted training. Also will develop and conduct training as required.

j. ICSS Equipment Contractor. The ICSS equipment contractor (Denro, Inc.) will primarily be responsible for the following:

(1) Conduct site survey.

(2) Construct and test ICSS equipment.

(3) Deliver equipment to destination.

(4) Install, test, and cutover equipment.

(5) Train personnel on operations and maintenance of equipment.

(6) Provide maintenance and supply support.

52. PROJECT CONTACTS. The following is a list of project management personnel designated as contacts for the ICSS Phase 1A Type 3 ICSS project.

a. John Vogt, Contracting Officer
Logistics Service, Contract Division, ALG-330
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

b. Joanne Kansier, Program Manager for
Voice Switching and Recording Program, ANC-120
Federal Aviation Administration
475 School Street, SW
Washington, DC 20024

c. Martin E. Robinson, Contracting Officer's Technical Representative
Voice Switching and Recording Program, ICSS, ANC-120
475 School Street, SW
Washington, DC 20024

d. Stephen Dash, SEI Project Lead
ARINC Research Corporation
475 School Street, SW
Washington, DC 20024

e. Walter Kwiatek, Program Manager for
Flight Service Station Program, ANW-120
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

f. Mike Coffelt
FAA Depot, AAC-934A
Federal Aviation Administration
Mike Monroney Aeronautical Center
P.O. Box 25082
Oklahoma City, OK 73125

g. Mike McKenzie
FAA Academy, AAC-943
Federal Aviation Administration
Mike Monroney Aeronautical Center
P.O. Box 25082
Oklahoma City, OK 73125

h. Tom Buschbaum
Office of Training and Higher Education, AHT-400
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

i. John Hunter
FSAS Program, ATR-104
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

j. Helen Krywka (AT, AEA-511.3), Mike Cataruzolo (AF, AEA-430)
Federal Aviation Administration
Eastern Region Headquarters
JFK International Airport
Fitzgerald Federal Building
Jamaica, NY 11430

k. Bill Miner (AT, ANE-513), Erv Boynton (AF, ANE-430)
Federal Aviation Administration
New England Region Headquarters
12 New England Executive Park
Burlington, MA 01803

l. Richard Young
FSAS & Weather Branch, ATR-130
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

m. Arv Hess (AT, ANM-514),
Robert Rollins (AF, ANM-422)
Federal Aviation Administration
Northwest Mountain Region Headquarters
17900 Pacific Highway South
C-68966
Seattle, WA 98168

n. Victor Byrd (AT, ASO-513.2),
Rich Williams (AF, ASO-422)
Federal Aviation Administration
Southern Region Headquarters
P.O. Box 20636
Atlanta, GA 30320

o. Al Bailey (AT, AWP-511.1), Art Yohan (AF, AWP-422.42)
Federal Aviation Administration
Western-Pacific Region Headquarters
P.O. Box 92007
Worldway Postal Center
Los Angeles, CA 90009

p. Richard Matthews (AT, AAL-517), Len Grau (AF, AAL-454)
Federal Aviation Administration
Alaskan Region Headquarters
222 West 7th Avenue
Anchorage, Alaska 99513

q. Umberto Garcia (AT, ASW-513), J.P. Morton (AF, ASW-421)
Federal Aviation Administration
Southwestern Region Headquarters
4400 Blue Mountain Rd.
P.O. Box 1689
Fort Worth, Texas

r. Charles Gage
Mike Monroney Aeronautical Center, ASM-600
P. O. Box 25082
Oklahoma City, OK 73125

s. James Jamitus, Manager
F&E Program Control, APM-110
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

t. Robert DeMott
Configuration Management and Engineering Support, ASE-610
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

53. PROJECT COORDINATION. The ICSS is an integral part of the Flight Service Automation System (FSAS) Program. There will be close coordination between the FSAS Program, the ICSS Program Office, ANC-120, and regional Air Traffic divisions.

54. PROJECT RESPONSIBILITY MATRIX.

Task/Plan/Activity	Primary Office	Supporting Office
Contract Award	ANC-120/SEI	ALG-330
Preliminary Delivery Schedule	ANC-120/Regions	ATR-104
Appointment of Associate Project Managers	Region Headquarters	
Site Survey	Contractor	Regions/ANC-120
Appointment of Site Project Engineer	Receiving Sites	Regions
Installation	Contractor	Site
Training Programs	ANC-120/SEI	AHT-300
Milestones	ANC-120/SEI	Regions
Configuration Management	SEI	ANC-120, ASE-600
Logistics Support Planning	ANC-120/SEI	FAA Depot/Regions
Factory Acceptance Test	Contractor	ANC-120/SEI
Shakedown Test Plan and Procedures	ASM-640	ANC-120/SEI
System Test Plans & Procedures	ANC-120/SEI	Regions
Joint Acceptance and Inspection	Regions AF/AT	ANC-120/SEI/Regions
Cutover	Regions	ANC-120/SEI
Procurement Acquisition	ALG-330	ANC-120/SEI
F&E Funding Control	APM-110	SEI
DRR	ANC-120/SEI	Regions

55. PROJECT MANAGERIAL COMMUNICATIONS. The program manager (ANC-120) will provide monthly reports via the Program Status Review Board (PSRB) to the Program Director for Communications (ANC-1). This report will provide information on cost, schedule, technical, and logistic issues that may exist. Also, a monthly status major milestone chart report will be provided, as a deliverable, from the contractor to ANC-120. This report will provide schedules, logistic issues, and overall status of the program. Regularly scheduled meetings will be held at both the contractor facilities and the program office to update the various FAA organizations on the status of the program. These meetings include National Airspace System Integrated Logistic Support Management Team (NAILSMT) and periodic contract reviews.

56. IMPLEMENTATION STAFFING. Staffing peculiar to the implementation phase of the contract will involve the local FAA project engineer and personnel who will perform site preparation as defined in the site survey. Upon arrival of equipment, contractor personnel will install and test the system. Contractor personnel will then train Air Traffic personnel on operations of the system.

57. PLANNING AND REPORTS.

a. Monthly Reports. The contractor will provide monthly reports (CDRL C11) which apprise the FAA of the status of the program schedule, and will identify problem areas, with proposed solutions, and efforts underway to implement solutions. Reports will be provided to the supporting FAA offices.

b. Site Survey Reports. The contractor will conduct detailed site surveys 6 months prior to equipment installation. The Site Survey Report (CDRL C19) will specify the onsite technical details for the installation of the switching system. (See paragraph 71) The site survey report will be reviewed by the program office and the site personnel before equipment delivery.

58. APPLICABLE DOCUMENTS.

FAA-STD-036	Preparation of Project Implementation Plans
Order 4800.2A	Utilization and Disposal of Excess and Surplus Personal Property
Order 6000.30A	Policy for Maintenance of the National Airspace System (NAS)
Order 1800.8E	National Airspace System Configuration Management
Order 6200.4D	Test Equipment Management Handbook
Order 6000.15A	General Maintenance Handbook for Airway Facilities
DTFA01-88-B-06497	ICSS Phase 1A Solicitation Package Jan. 29, 1988

FAA-STD-019A	Lightning Protection, Grounding, Bonding, and Building Requirements for Facilities
FAA-STD-020a	Transient Protection, Grounding, Bonding and Shielding Requirements for Equipment
FAA-C-1217d	Electrical Work, Interior
Order 6030.45	Facility Reference Data File

59. RESERVED.

CHAPTER 6. PROJECT FUNDING

60. PROJECT FUNDING STATUS, GENERAL. The ICSS project will be implemented primarily as a Facilities and Equipment (F&E) funded program. The program funding requirements are as follows: (in millions)

FUNDING	FY88	Quantity	FY89	Quantity	FY90	Quantity	FY91	TOTALS
FSAS	$27.2M	11	$12.5M	5	0	0	0	
ICSS	7.8M	3	2.8M	1[1]	$7.2M	3[1]	0	
COST	$35.0M		$15.3M		$7.2M		0	$57.5
Quantity (Systems)		14		6		3		23

[1] These quantities represent the contingency option for four additional systems.

61.-69. RESERVED.

CHAPTER 7. DEPLOYMENT

70. GENERAL DEPLOYMENT ASPECTS. The primary method by which deployment planning is developed is the DRR. It defines the management process by which the ICSS Program Manager leads an FAA review to ensure that the ICSS Program is ready to be integrated into the NAS and that the regions are ready to receive the systems when deployed. The tentative DRR schedule is:

a.	Initiate DRR Process	Began February 1989
b.	DRR Team Announcement	Sent in March 1989
c.	Convene Initial DRR Team Meeting	Conducted April 18, 1989
d.	Summary DRR report to Associate Administrator	T + 270 (9 mo)
e.	First system delivered to first site	T + 300 (10 mo)

f. The DRR team consists of the following representatives:

(1) FAA Headquarters

NAS System Engineering Service	ASE-1
Program Director for Communications	ANC-1
Systems Maintenance Service	ASM-1
Program Director for Automation	ANA-1
Logistics Service	ALG-1
Office of Training and Higher Education	AHT-1
Air Traffic Plans and Requirements Service	ATR-1
Office of Labor and Employee Relations	ALR-1
Office of Human Resources Development	AHD-1

(2) FAA Regions/Centers

FAA Technical Center	ACT-1
Mike Monroney Aeronautical Center	AAC-1
Aviation Standards National Field Office	AVN-1
Airway Facilities Division	Regions
Air Traffic Division	Regions
Flight Standards Division	Regions

NOTE: T indicates Contract Award

71. SITE PREPARATION.

a. Prior to the site survey, the ICSS contractor will establish contact with the local FAA project engineer who is the point of contact for the site receiving the ICSS. Also, the ICSS contractor will coordinate all installation activities with the regional associate program manager and the program

office (ANC-120). The regional associate program manager will monitor regional site preparation and installations and keep the program office informed concerning the status of site preparation and installation activities.

b. The contractor will perform a site survey 6 months prior to equipment installation. The purpose of the site survey is to obtain information and details required to install, integrate, and cutover the ICSS. The site survey will also determine work that must be accomplished by the FAA (pre-installation) prior to contractor installation of the ICSS. Details will include size of equipment, cutouts required, mounting details and floor plans which will show equipment locations. A site survey report will be prepared by the contractor and forwarded to ANC-120 and the specific site at which the survey was performed for approval. ANC-120 and the cognizant site personnel will review the site survey for accuracy. Comments will be forwarded to the contractor within 30 days for necessary action.

c. Unless prohibited, the FAA will allow ICSS maintenance contractor personnel, with proper identification, unescorted access to the ICSS facility. The contractor shall be responsible for the security of keys, combinations, or other methods issued for access to an FAA facility or equipment. Upon arrival at a site, the contractor shall notify the appropriate FAA personnel of their arrival. After commissioning, time of arrival and departure shall be entered in the Facility Maintenance Log.

72. DELIVERY. The contractor is responsible for all activities relating to packing, shipping, receiving, installing, integrating, and testing all elements of the ICSS. All items specified by the contract are to be delivered to each site by the contractor to permit testing and acceptance in accordance with the site-specific details developed prior to deployment. This includes hardware components, computer program tapes, manuals and other documentation, and special tools. The delivery schedule is shown in table 3.

73. INSTALLATION PLAN.

a. Prior to installation startup, the contractor installation manager will contact the local FAA project engineer. The contractor installation manager will be responsible for all contractor installation activities and will coordinate installation activities with the program manager and project engineer. The contractor installation team will install the ICSS equipment. The installation details outlined in subparagraphs (1) - (10) will generally be accomplished in the order shown but may be changed by the contractor with the project engineer's approval as necessary.

(1) Installation of the power distribution system.

(2) Installation of the grounding distribution system.

(3) Receive, unpack ICSS equipment.

(4) Locate and secure ICSS common equipment.

(5) Install ICSS racks.

(6) Install ICSS equipment in racks.

(7) Install inter-rack cabling.

(8) Install module controllers for the various consoles.

(9) Route and connect cables.

(10) Connect and test telco trunk lines.

b. Performance tests will be conducted to assure that the ICSS meets all specific parameters prior to presenting the equipment for government acceptance. During Phase 1 of the ICSS, Type 3 was successfully integrated into the NAS. Therefore, the program office has been waived of the requirement to conduct integration testing on ICSSs under the Phase 1A program. Once the ICSS has been installed and is otherwise determined to be fully operational to the contractor's satisfaction, it will be demonstrated to the FAA that it meets all operational requirements (see Chapter 8, Verification).

c. A cutover plan (CDRL C06) will be developed by the contractor describing procedures to be followed to achieve operational status. The cutover plan shall be developed in coordination with the designated FAA site project engineer. The cutover plan will be reviewed by the site personnel and the program office with comments back to the vendor before start of cutover.

74.-79. RESERVED.

CHAPTER 8. VERIFICATION

80. GENERAL. Verification of the technical contract requirements will be accomplished by a series of test and evaluation activities at the contractor's site and at each installation. After completion of factory testing, the equipment will be packaged, crated, and shipped to sites for installation and site acceptance testing. At the completion of onsite testing, the FAA will accept the system and begin the necessary activities toward commissioning.

81. FACTORY TESTING. Factory testing is the responsibility of the contractor and will be witnessed by FAA personnel. Factory testing can be categorized in three phases: inspection, subsystem functional, and design qualification testing. Inspections will be informal in nature and will verify that all components, boards, assemblies and subassemblies conform to all applicable standards. Subsystem functional testing will be formal in nature to ensure that all subsystem boards and subassemblies meet the technical requirements of the purchase description. After completion of subsystem functional tests, the contractor shall perform design qualification and system integration tests to ensure that the ICSS meets all functional system and environmental requirements called out in the purchase description. Once verified that the equipment functions properly and meets all purchase description requirements, systems will be shipped to the sites for installation, onsite testing, cutover, FAA acceptance, an operational readiness demonstration (ORD). The contractor shall provide a Site Installation, Integration and Acceptance Test Plan (CDRL C05) that will be reviewed by the program office and site personnel before equipment installation.

82. CHECKOUT. After site installation, checkout is the first stage of onsite testing and is performed by the contractor at the intra-system level. The ICSS tests will verify hardware integrity prior to interfacing with any site equipment. The tests will mainly consist of system alignment, internal processor tests, input/output device testing, voltage and signal tests, cable testing, and major functional tests.

83. CONTRACTOR INTEGRATION AND ACCEPTANCE TESTING.

a. Following the successful completion of intra-system checkout, testing of the integrated equipment will be performed. The contractor will perform system tests using load boxes and other suitable devices to ensure that normal FAA operational functions are not disturbed. All operational software for the system will be loaded and the site adaptation exercise will be run. All input/output devices will be exercised and tested for proper system operation. These test shall be done to the government's satisfaction. The government will have the option to witness all tests or to perform onsite load testing.

b. Upon completion of the Contractor Integration and Acceptance Testing, the Contractor Acceptance Inspection (CAI) will be conducted by the regional associate program manager's representative or the contracting officer's technical representative (COTR). Successful completion of CAI signifies the

formal acceptance by the FAA of the ICSS equipment from the contractor. The ICSS acceptance will be accomplished by the execution of SF Form 256 at each site. Following CAI, Initial Operating Capability (IOC) must be achieved. IOC is the declaration of Airway Facilities and Air Traffic managers, in concert with responsible FAA headquarters and regional management, that the system (including hardware, software, and personnel) is physically and functionally capable of providing the intended service.

84. FAA INTEGRATION TESTING. ICSS's have previously been integrated into the NAS, and no further integration testing will be required.

85. SHAKEDOWN AND CHANGEOVER. Following the CAI/IOC, the sites will enter into a system shakedown phase.

a. The purpose of system shakedown is to determine the degree to which the system meets the NAS operational requirements when operated and maintained by the users. It also determines that level to which the system, personnel, procedures, training, and logistics have been successfully integrated into the NAS. The regions will be responsible for and will conduct the CAI/IOC subsequent to the first site.

a. System Shakedown.

(1) System Shakedown Test Plan. The System Shakedown Test Plan will be developed by ASM-640 to address those items that must be verified during the shakedown test and evaluation (ST&E). This plan will outline the actions required to determine the overall readiness of the ICSS, personnel, procedures, documentation, and support to ensure full operational usability of the system. Shakedown tests will take place at each installation site. ASM-640 will conduct shakedown tests at the first installed site (Jonesboro, AR) only.

(2) Prerequisites for Starting System Shakedown.

(a) The contractor will demonstrate that the system has complied with all performance and functional requirements of the ICSS purchase description and amendments and that all deliverables have been delivered.

(b) AFSS specialists will complete training on all phases of operation on the ICSS. Selected AFSS specialists will have completed training for system operations, system loading, system initialization, memory dumps, maintenance training, and other system functions required for day-to-day operations.

(3) System Shakedown Activities. These tests will be accomplished in an operational environment and will be integrated with the normal operations of the facility. Shakedown activities include:

(a) Operational evaluation site training, personnel readiness, and training adequacy.

(b) Provisioning identifying logistic support requirements, is the responsibility of the contractor who has site maintenance responsibility.

(c) Software operational confirmation of all required software functions and parameters.

(d) Verification of all operations cutover procedures.

86. JOINT ACCEPTANCE INSPECTION (JAI). The JAI will be conducted by a joint acceptance board after shakedown testing and in accordance with Order 6030.45, Facility Reference Data File. The JAI will ensure that each ICSS facility meets all specified requirements for operation and maintenance and has demonstrated that the facility is ready to be commissioned. The joint acceptance group made up of various FAA and regional groups will participate in a final system acceptance to the region.

87. OPERATIONAL READINESS DEMONSTRATION (ORD). The ORD is performed at the completion of shakedown activities. The ORD demonstrates that the system has passed all testing and is ready to support AFSS operational functions. It also indicates the readiness of all operational personnel and, all hardware/ software and support functions for the system complies with all requirements. The ORD is the final stage of JAI. It is at this stage that system responsibility is transferred from the project office to the region.

88. OPERATIONS CUTOVER. Operations cutover or commissioning is the final stage of system implementation. It is at this stage that all systems are integrated into the NAS. The regions are responsible for developing the necessary cutover schedules and coordination for the smooth transition into the NAS.

89. RESERVED.

CHAPTER 9. INTEGRATED LOGISTICS SUPPORT

90. TYPE 3 ICSS MAINTENANCE CONCEPT. The contractor will develop and conduct an Integrated Logistics Support (ILS) Program (CDRL C20). The Voice Switching and Recording Program Office (ANC-120), as well as the FAA Depot (AAC-400), the National Airway Engineering Field Support Sector (ASM-600), and the regions will review contract data requirements list (CDRL) C20 before acceptance. The contractor will support each site with all maintenance resources, including spares, test equipment and trained technical personnel, to troubleshoot and repair the system for at least the first year, with three options of 1 year each as required. The contractor will provide two levels of maintenance; site and FAA Depot. Site maintenance consists of preventive maintenance and corrective maintenance actions. FAA Depot maintenance consists of the repair of faulty line replaceable units (LRU). The contractor will also provide additional maintenance services; scheduled telephone availability, contractor maintenance support, and emergency site service. Regions will monitor contractor maintenance performance and provide this information back to the program office.

a. Scheduled Telephone Availability Maintenance Service. The contractor will maintain a pool of qualified technicians who will keep the contractor control point informed as to their locations and the telephone numbers at which they can be reached if needed. A maintenance technician will arrive onsite and initiate repairs, or the problem will be resolved, within 2 hours after notification by the government. The contractor will assure availability of qualified personnel.

b. Contractor Maintenance Support. The contractor will maintain a "hot line" telephone advisory service on a 24-hour per day basis. This service will be staffed by contractor ICSS maintenance experts who are fully prepared and equipped to provide guidance to FAA technicians when they are unable to identify or resolve an ICSS problem. Assistance from these experts will commence within 15 minutes after the request is initiated.

c. Emergency Site Service. The contractor will, upon request, provide emergency site service by a fully prepared ICSS contractor engineer within 24 hours after notification by the government of a maintenance problem that could not be remedied by a contractor technician.

d. FAA Maintenance Responsibility. After establishment of configuration control, baselining of equipment, and staffing and supply support evaluations, the FAA plans to assume full responsibility for the maintenance of the ICSS equipment.

91. TRAINING. Upon acceptance of the ICSS, academy personnel will provide initial operator training to a cadre of specialists at the site. The remaining specialists and supervisors will be trained by this site cadre. Prior to the transition from contractor maintenance to FAA maintenance, the contractor will train the AF maintenance technicians on the Phase 1A Type 3 ICSS at the contractor's facility. Up to ten (10) classes, containing twelve (12) persons each, will be conducted. Recurring operator and maintenance follow-on training

will be conducted at the FAA Academy using support equipment ordered under the contract. Regions will identify quotas for training and coordinate with the program office and ASM-210 for both initial and recurring training. FAA Depot maintenance technicians and engineers will be provided depot level training (component level) on the ICSS (not including ancillary equipment) at the contractor's facility prior to the FAA Depot assuming depot level maintenance responsibilities.

92. SUPPORT TOOLS AND TEST EQUIPMENT.

a. Common Tools and Test Equipment. The contractor will identify the common tools and test equipment (CDRL C26) necessary for the maintenance of their system in accordance with the Statement of Work. Listings of the common tools and test equipment will be incorporated into the applicable maintenance manuals.

b. Automatic Test Equipment and Software. A listing of the recommended Automatic Test Equipment (ATE) and its operating and functional software will be furnished to the FAA by the contractor. The equipment will be identified in the required Logistics Support Analysis (LSA) data. The ATE hardware and software which the contractor uses for in-house production and repair will also be identified for the purpose of system repair or reproduction.

c. Maintenance/Calibration of Tools and Test Equipment. Periodic calibration of FAA owned site and work center tools and test equipment, both standard and special, will be the responsibility of the work center and will be accomplished by the work center or by a contract administered by the work center whichever is the most cost effective. Contractor-owned and supplied tools and test equipment will be calibrated and maintained by the contractor. All calibration and maintenance, whether by the contractor or by the FAA, will be in accordance with Orders 6000.15A, General Maintenance Handbook for Airway Facilities, and 6200.4D, Test Equipment Management Handbook. Records of required calibrations and maintenance will also be in accordance with Orders 6000.15A and 6200.4D.

93. SUPPLY SUPPORT. The contractor will provide site spares for each site. The contractor will also provide an adequate supply of consumable items (fuses, lamps, filters, etc.) onsite, which will be replenished at no additional charge. If site spares have been used, the contractor will take the necessary action to restore the spares to the minimum required quantities within 24 hours. The FAA will initiate return of faulty modules and assemblies within 72 hours after notifying the contractor.

94. VENDOR DATA AND TECHNICAL MANUALS. Applicable LSA data will be provided by the contractors giving maintenance and supply information essential for developing technical manuals, provisioning lists, and other documentation required for performing the tasks associated with equipment repair.

95. EQUIPMENT REMOVAL. Equipment removed by the FAA during installation of the ICSS will be disposed of in accordance with Order 4800.2A, Utilization and Disposal of Excess and Surplus Personal Property.

96. FACILITIES. The ICSS will be configured to fit within existing facilities. No special responsibilities have been assigned to the Government for designing, developing, or acquiring support facilities. The Government will, however, supply space and site preparations for support of the installation effort at each site receiving an ICSS (see Par. 71, Site Preparation).

97.-99. RESERVED.

CHAPTER 10. CONFIGURATION MANAGEMENT

100. CONFIGURATION MANAGEMENT.

a. CM is the process used to identify and document the functional and physical characteristics of a configuration item, control changes to those characteristics, and record and report change processing and implementation status. Configuration items of concern for this implementation are the hardware, software, and associated documentation which comprise the ICSS baseline.

b. The CM discipline will be applied to all configuration items included in the ICSS baseline. All additions and changes to the ICSS baseline will be proposed in the form of a case file, and shall be reviewed for recommended approval or disapproval by the ANC-100 CCB.

(1) Acquisition Phase Configuration Management.

(a) ANC-100 CCB controls the establishment of, and changes to, the ICSS hardware and software baselines during the acquisition phase. For ICSS matters, the ANC-100 CCB will include members from Maintenance Operations, Contracts, Air Traffic, NAS System Engineering, Configuration Management, and SEI. The ANC-100 CCB is responsible for ensuring that the functional performance, and interface requirements allocated to the ICSS hardware and software subsystems are reflected in the baselines, and in any changes to those baselines until product acceptance. The ANC-100 CCB is also responsible for ensuring that baseline documentation is accurate and reflects ICSS operational requirements. Baseline documentation includes specifications and Interface Control Documents (ICD). The ANC-100 CCB retains this CM responsibility until the last ORD.

(b) The contractor will plan, execute, and manage the CM functions associated with the development of ICSS hardware and software enhancements during contract performance, in accordance with the applicable DOD and FAA standards cited in the statement of work. This will include configuration identification, control, status accounting, and baselining of hardware configuration items.

(c) As a prerequisite to accepting the first production ICSS the contractor is required to conduct functional and physical configuration audits (FCA/PCA) with FAA participation. The audit team will consist of ANC-120, ASM-640, ASE-610, and AAC-400.

(d) Upon successful completion of the configuration audits, ANC-120 will initiate a casefile for the ICSS product baseline in accordance with Order 1800.8E, NAS Configuration Management. Approval of the product baseline NCP by the ANC-100 CCB initiates FAA baseline management activity.

(2) Transition of Hardware/Software CM. The CM responsibility associated with the ICSS hardware and software products will transition from ANC-120 to ASM-640 after last ORD. Subsequently, approval authority of all ICSS NCP activity will transition from the ANC-100 Cluster CCB to the Maintenance Engineering (ME) CCB. A hand-off package for the ICSS will be prepared by ANC-120 consisting of all hardware technical and provisioning documentation, all software magnetic tapes and supporting documentation and site installation documentation.

(3) Operational Support Phase CM. During the operational support phase, and for the entire life cycle of implemented ICSS hardware and software, CM functions will consist of maintenance and change control management to ensure the integrity of the approved product baseline. The roles of all hand-off participants are depicted as follows:

(a) Maintenance Engineering Division, FAA Headquarters. ASM-100 will chair the Maintenance Engineering (ME) CCB for all changes to the ICSS hardware and software. They will authorize all local ICSS software and hardware modifications at this level in accordance with Order 1800.8E.

(b) The National Airway Engineering Field Support Sector. ASM-640 is the recipient organization for system engineering technical documentation for all hardware and software. They are the custodians of hardware/software documentation and all software magnetic media. ASM-640 will perform development and testing of modified Phase 1A ICSS Type 3 system hardware and software and will prepare Electronic Equipment Modifications (EEM). They are responsible for status accounting of system hardware/firmware configurations and providing repository and library service for the permanent storage of technical instruction books, maintenance handbooks, and related engineering documentation. Finally, they will perform the status accounting function of the system software configuration and provide library services for the permanent storage of programs and documentation.

(c) The FAA Depot. AAC-400 is the recipient organization for all provisioning technical documentation for ICSS. They are responsible for maintaining all logistics oriented documentation such as provisioning parts, provisioning parts list, reprocurement technical documentation, Level III engineering drawings, etc., as assumed at the hand-off.

(d) Regions. Regional personnel will be responsible for review and approval of site acceptance and site specific documentation, for all sites within their jurisdiction. They must generate casefiles for changes to site specific documents for site adaptation purposes and have them processed in accordance with Order 1800.8E and regional CCB procedures. Upon approval of the CCD, they must maintain records of the CCDs and revised documentation and verify the implementation of the change.

101.-109. RESERVED.

APPENDIX 1. DEFINITIONS/ACRONYMS

AAC	Mike Monroney Aeronautical Center
AF	Airway Facilities
AFSS	Automated Flight Service Station
AT	Air Traffic
ATC	Air Traffic Control
ATE	Automated Test Equipment
CAI	Contractor Acceptance Inspection
CCB	Configuration Control Board
CCD	Configuration Control Division
CDRL	Contract Data Requirements List
CM	Configuration Management
Comm	Communications
COTR	Contracting Officer's Technical Representative
DECCO	Defense Electronics Commercial Communications Office
DOD	Department of Defense
DRR	Deployment Readiness Review
EEM	Electronic Equipment Modification
EXT	External
FAA	Federal Aviation Administration
FAT	Factory Acceptance Test
FBO	Fixed Base Operations
FCA	Functional Configuration Audit
F&E	Facilities and Equipment
FSAS	Flight Service Automation System
FTS	Federal Telecommunications System
FY	Fiscal Year
G/A	Ground-to-Air
Hz	Hertz
ICD	Interface Control Document
ICSS	Integrated Communications Switching System
IFB	Invitation for Bids
ILS	Integrated Logistics Support
IOC	Initial Operating Capability
JAI	Joint Acceptance Inspection
LRU	Line Replaceable Unit
LSA	Logistics Support Analysis
MBO	Military Base Operations
ME	Maintenance Engineering
MPS	Maintenance Processor Subsystem
M&OS	Maintenance and Operations Subsystem
NAILSMT	National Airspace System Integrated Logistic Support Management Team
NAS	National Airspace System

NCP	NAS Change Proposal
NMCE	National Monitoring and Control Equipment
ORD	Operational Readiness Demonstration
OST	Office of the Secretary of Transportation
PABX	Private Automatic Branch Exchange
PATWAS	Pilot Automatic Telephone Weather Answering Service
PBX	Private Branch Exchange
PCA	Physical Configuration Audit
PIP	Project Implementation Plan
PR	Procurement Request
PSRB	Program Status Review Board
RCE	Radio Control Equipment
R&D	Research and Development
SEI	Systems Engineering and Integration (SEI) Contractor
STD	Standard
ST&E	Shakedown Test and Evaluation
T	Contract Award
TCS	Tower Communications System
TE	Transmission Equipment
TMVS	Traffic Management Voice Switch
TPL	TSARC Program Listing
TSARC	Transportation System Acquisition Review Council
UHF	Ultra High Frequency
VAC	Volts Alternating Current
VHF	Very High Frequency
WATS	Wide Area Telephone Service

*U.S. GOVERNMENT PRINTING OFFICE: 1991--519-094/21100